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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

YENKE, BRIAN P

ART UNIT

PAPER NUMBER

2614

DATE MAILED: 08/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/465,038

Applicant(s)

KEEN, RONALD THOMAS

Examiner

BRIAN P. YENKE

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment (04 June 2002).
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on (none filed) is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

Drawings

2. It should be noted, that currently no drawing(s) have been filed with the current application. The applicant is again requested to provide a drawing(s)/depiction of the claimed invention, in order to avoid abandonment.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitations of the claims must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the inventive elements as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the

essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

5. Claims 5 and 17 objected to because of the following informalities:

The claims now amended state "...36.336 KHz..." however, as original claimed 39.336 KHz, where the previously claimed 39.336 KHz is supported by the specification and the computation ($2.5 \times 15,734..$) Therefore, 36.336 KHz should be amended to state 39.336 KHz. Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6a. Claims 1, 5, 13 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by **Martinez, US 5,812,184**.

In considering claims 1 and 13,

Martinez does not specifically disclose an artifact being leaked via stray electrostatic/capacitance coupling.

Though it is noted by the examiner, a) that artifacts that are generated via stray electrostatic/capacitance coupling (i.e. EMI) are notoriously well-known in the art, where interference can be generated by the electrical components/circuitry themselves, in addition to clocks operating at higher frequencies which thus increase the level of EMI. The examiner provides Lo et al., US 6,046,646 which discusses in the background the interference generated by circuit boards and high clock frequencies (col 1, line 17-29).

It is also noted by the examiner, b) that it is notoriously well-known that component frequencies of the luminance signal are concentrated near a horizontal scanning frequency f_h and the higher harmonics $nx f_h$, and the component frequencies of the chrominance signal are concentrated in odd-multiples of $\frac{1}{2} f_h$ ($n + \frac{1}{2}$) f_h . The examiner provides Murakami, US 3,836,707 which discloses the well-known component frequencies (col 3, line 27-49).

Martinez discloses a system which places additional data over a video signal, where the video/data signal can be processed and eliminating any effects from the data signal on the video presented. Martinez discloses a receiver 49 (Fig 7) of TRM 22 (Fig 5) where the selected frequency signal is sent to compressed video detector 50 and uncompressed to NTSC block 52 (Fig 7). To properly cancel the effect of the additional data or any alien signal superimposed upon the waveform pedestal, the rate of the additional data must equal an odd harmonic of one-half the standard TV

horizontal scan rate (col 9, line 28-48 and col 13, line 42-55) to visually cancel, and thus eliminate the artifact.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to modify/utilize well-known elimination of any alien signal on a video waveform as done by Martinez, which discloses placing additional data on a the video signal and also eliminating any perceptible interference, by selecting the data to be an odd harmonic of one-half the standard TV horizontal scan rate, and to also account for any accounted EMI interference, to ensure an alien-signal (artifact) free displayed video signal.

In considering claims 5 and 17, *the claimed wherein fh is the NTSC standard horizontal standard scan frequency of 15,734.26573 Hz...*

Martinez does not specifically disclose the predetermined fundamental frequency of the periodic signal is approximately 39.336 kHz.

Martinez discloses that any signal (in addition to video signal) that resides on the periodic video pedestal of 15,734 Hz which is intended to visually cancel must possess a fundamental frequency which an odd multiple of one-half the television horizontal (H-scan) frequency. An example given is the NTSC chrom-subcarrier of 3.579545 MHz is an odd multiple of one-half the horizontal scan rate, a multiple equal to 455.

Thus any known frequency signal that is effecting the video passband of the video signal, as in the NTSC standard, can be eliminated/reduced. The component frequencies of the luminance signal are concentrated near a horizontal scanning

frequency f_h and the higher harmonics nf_h , whereas the component frequencies of the chrominance signal are concentrated in odd harmonics of $\frac{1}{2} f_h$, thus $(n + \frac{1}{2}) f_h$.

Therefore, it would be obvious to one of ordinary skill in the art to recognize that many types of signals (frequencies) which reside in the video passband can be eliminated, by selecting (where $n = 1, 2, 3$) a frequency of the residing signal to be an odd multiple of one-half the horizontal scan rate, which would visually cancel the residing video from being displayed.

6b. Claims 2-4, 10, 14-16 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by **Martinez, US 5,812,184 in view of Bassetti et al., US 6,046,735 and Koh, US 6,035,184.**

In considering claims 2 and 14, *the claimed wherein the periodic signal is a clock signal.*

Martinez does not specifically disclose clock signals, where the clock signal is the periodic signal which thus produces the artifacts in the display. Martinez as discussed above discloses placing additional data over a video signal, and also the eliminating of any perceptible interference by selecting the data to be an appropriate odd harmonic of $\frac{1}{2}$ the TV horizontal scan rate, which as Martinez can be used for eliminating any alien signal.

It is noted by the examiner that clock signals are inherent signal processing systems (transmitter, receiver). Martinez discloses that one of the preferred data-over-

video modulation options (Option C, col 15, line 50-63) where the data signal (I & Q) component are at the bit clock speed, equal to an odd harmonic of H-sync/2, thus eliminating perceptible interference from the data signal into the video signal.

The examiner also provides two references which disclose the problems of EMI attributed to clock signals.

Bassetti et al., US 6,046,735 discloses that the use of higher clock rate signals generate more radiation and hence increase the amount of EMI. Where EMI is a measure of the amount of interference that an electronic device (the unintentional transmitter) disturbs an intentional receiver (col 1, line 31-33).

Koh, US 6,035,184 discloses a system which reduces the harmonic component of a clock signal, to eliminate any stray capacities of the circuit within the circuit (col 1, line 7-37)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify/utilize Martinez which discloses eliminating any perceptual interference of a data signal or alien signal over a video signal, with Bassetti and Koh, in order to eliminate any artifact created by EMI (includes stray capacitance) thus preventing the clock signal from interfering with the video signal.

In considering claims 3-4, 10, 15-16 and 22, *the clock signal is of a spread spectrum clock,*

Martinez does not specifically disclose frequency modulating (FM) the clock signal. As stated above in claim 2, Martinez does not specifically disclose clock signals.

Bassetti et al, US 6,046,735, discloses a technique to reduce EMI is to vary or modulate the frequency (FM) of the clock, a technique known as spread spectrum (col 2, line 30-41), which spread out the frequency spectrum of the clock signal and thus reduces the radiation/intensity (col 2, line 54-62).

Thus, it would have to one of ordinary skill in the art at the time of the invention to modify/utilize frequency modulating of the clock in order to reduce radiation with Martinez which discloses reducing the effects of any data-over or alien signal imposed on the video signal, in order to provide a video signal free of artifacts.

In considering claims 5 and 17, *the claimed wherein fh is the NTSC standard horizontal standard scan frequency of 15,734.26573 Hz...*

Martinez does not specifically disclose the predetermined fundamental frequency of the periodic signal is approximately 39.336 kHz.

Martinez discloses that any signal (in addition to video signal) that resides on the periodic video pedestal of 15,734 Hz which is intended to visually cancel must possess a fundamental frequency which an odd multiple of one-half the television horizontal (H-scan) frequency. An example given is the NTSC chrom-subcarrier of 3.579545 MHz is an odd multiple of one-half the horizontal scan rate, a multiple equal to 455.

Thus any known frequency signal that is effecting the video passband of the video signal, as in the NTSC standard, can be eliminated/reduced. The component frequencies of the luminance signal are concentrated near a horizontal scanning frequency f_h and the higher harmonics nf_h , whereas the component frequencies of the chrominance signal are concentrated in odd harmonics of $\frac{1}{2} f_h$, thus $(n + \frac{1}{2}) f_h$.

Therefore, it would be obvious to one of ordinary skill in the art to recognize that many types of signals (frequencies) which reside in the video passband can be eliminated, by selecting (where $n = 1, 2, 3$) a frequency of the residing signal to be an odd multiple of one-half the horizontal scan rate, which would visually cancel the residing video from being displayed.

In considering claims 6-7 and 18-19, *the claimed wherein the periodic signal..is rounded up or rounded down to an integral number.*

Martinez discloses the elimination of the data-over or alien signal imposed on a video signal by eliminating the odd harmonic of $\frac{1}{2}$ the horizontal frequency. The horizontal scan frequency of the NTSC video signal is 15,734.26573 Hz, thus by selecting a $n(\frac{1}{2})f_h$ ($2 \times 1.5 \times 15,734.26573$) of the horizontal frequency multiplied by the horizontal scan frequency results in a number of approximately 39.336 KHz. It would be obvious to one of ordinary skill that the approximate number 39.336 KHz, could be rounded up or down based on the precision of the designer/system, where 15,734.26573 in precision will compute a 39.336 KHz signal which can thus be rounded

down to the 39 KHz signal, and where 15,734.26573 is used as (16) rounded up, the computed frequency will be 40 KHz, thus the designer can round up or down.

6c. Claims 8-9, 11-12, 20-21 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Martinez, US 5,812,184 and Vorenkamp et al., US 6,285,865 in view of Bassetti et al., US 6,046,735 and Koh, US 6,035,184.**

In considering claims 8-9, 11-12, 20-21 and 23-24, *the claimed integrated circuit*, Martinez does not specifically disclose an integrated circuit.

Martinez discloses a system which can be utilized as a set-top box on television receiver 22/24 (Fig 4), which eliminates extra circuitry required in collecting, switching, sorting viewer responses on the CATV network along with their cumulative noise being eliminated.

The examiner provides a well known teaching of an integrated circuit. Vorenkamp et al., US 6,285,865 discloses a integrated receiver which provides channel selection and image rejection implemented on a single CMOS integrated circuit. The integrated circuit as disclosed by Vorenkamp, discloses that such a receiver would typically be contained in a television set, a set-top box, a VCR, a cable modem or any kind of tuner arrangement. Vorenkamp, discloses that historically low noise substrates, fabricated from exotic materials have been used to reduce noise generated by the semiconductor substrate (col 10, line 1-4).

Therefore, it would have been obvious to one skilled in the art to recognize that Martinez system which eliminates the extracting circuitry required to process user's request and eliminates cumulative noise due to additional alien signals residing on the video band and component generated noise, would have been motivated by Vorenkamp to utilize an integrated-circuit in the design of the receiver to further reduce the size/cost of the receiver, and maintain the functionality of being contained in a TV set, set-top box, VCR or any tuner arrangement.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Yenke whose telephone number is (703) 305-9871. The examiner work schedule is Monday-Thursday, 0730-1830 hrs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, John W. Miller, can be reached at (703)305-4795.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 305-4700.

B.P.Y.

31 July 2002


JOHN MILLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600